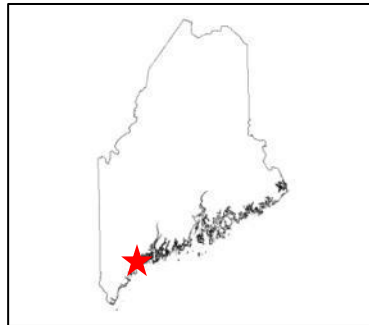


Geologic Site of the Month
January, 2007

***Exterior Stone of Some Architecturally
Prominent Buildings, Portland, Maine***



43° 39' 41.30" N, 70° 15' 19.17" W

Text by
Thomas K. Weddle



Introduction

There are a great many buildings in Portland, Maine, that are considered important landmarks, many listed on the [National Register of Historical Places](#). This website will focus on the exterior building stone found at a few of the well known buildings in the city of Portland. Not all of the details of the origin of the building stone are known. The origin of some building stone is known only through oral tradition, while other stone is described by documented accounts. Some of these buildings were constructed after the Great Portland Fire of 1866, and newspaper accounts of the architectural design and building materials may have provided Portland historians with details which they may have presented only in part in their volumes on the city history.

To add to the complexity of origin of the building stone, most of the rocks from Maine used as building stone are from bodies known as plutons; a pluton is a rock body that was a molten mass in the earth's crust that cooled and solidified over time. Even though in the quarrying trade all plutonic rocks are termed granite, a pluton can be a complex of different rock types, such as granite, syenite, and diorite, all characterized by their mineral composition. True granite contains the minerals quartz and feldspar, usually with mica or hornblende, and minor accessory minerals. In the quarry trade, the term black granite is used for dark-colored rock known to geologists as gabbro, a plutonic rock that has no quartz or light colored feldspar.



Portland City Hall

We will begin our virtual tour with Portland City Hall at 389 Congress Street (Figure 1). On January 24, 1908, the old Portland City Hall burned.



Figure 1. Portland City Hall, 389 Congress St.



Portland City Hall

The [cornerstone](#) of the new city hall was laid on October 6, 1909 and the new building was dedicated on August 22, 1912. The architectural firm for the design of the building was Carrere and Hastings from New York, with local associates John Calvin Stevens and his son John Howard Stevens. Building stone for the new city hall was quarried from North Jay, Maine (Maine and New Hampshire Granite Corporation Quarry; Grindle, 1977, p. 188). The rock is biotite-muscovite granite of very light gray shade and fine, even texture (Figure 2); it is from the North Jay pluton of Devonian age. Accessory minerals include garnet, magnetite, and apatite.



Photo by Thomas K. Weddle

Figure 2. Close-up of Portland City Hall showing biotite-muscovite granite of very light gray shade and fine, even texture from the North Jay pluton.

First Parish Church

Our next stop will be at the First Parish Church at 425 Congress Street (Figure 3). The First Parish Church of Portland is the oldest house of worship in the city, with its establishment dating to 1674. The present day meeting-house was constructed beginning in 1825 and completed less than a year later in 1826.

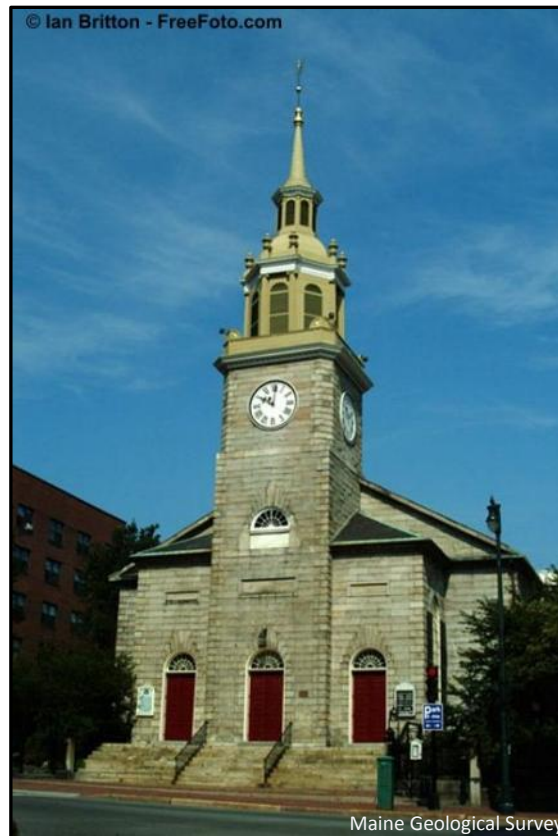


Figure 3. First Parish Church, 425 Congress Street.



First Parish Church

The corner stones and stones framing windows and entrances appear to have been sawn on the facing side to give an ornamental appearance as compared with the rough hand-cut of most of the blocks of the exterior walls (Figure 4).

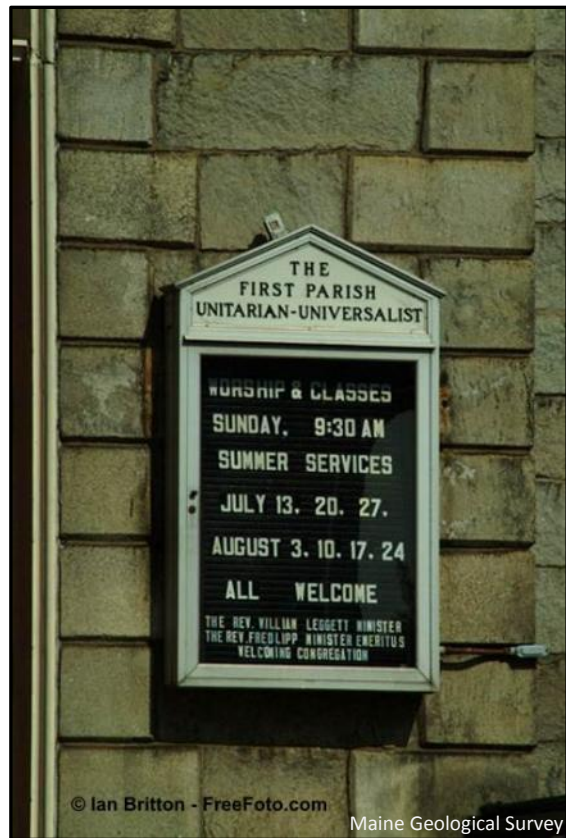


Figure 4. Detail of the exterior wall of the First Parish Church.

First Parish Church

Most histories, including the history by the church, state that the church is made from granite quarried in Freeport. However, the only large-scale quarry in Freeport was opened in 1886, well after the construction of the church. A newspaper article from 1965 states the source of the stone as Freeport, but that the framing of the first window on the east side is of Quincy granite (Massachusetts). The Maine Geological Survey publication *Maine Granite Quarries and Prospects* reports that the Grant Quarry in Brunswick is the source of the building stone. Also, T. N. Dale (1907, p. 77), states "The chapel of Bowdoin College, at Brunswick, was built of this same granite found on the Merriman Farm, but the stone was taken from another opening, near this one, which is referred to by George P. Merrill as also furnishing the stone for the First Parish Church, in Portland." However, Merrill (1883, p 171) states,

"At Brunswick two varieties of granite, a coarse and a fine, are quarried on a small scale, principally for local use. The color of the finer variety is very uniform but of a slight yellowish cast on a polished surface. Both varieties contain muscovite in considerable abundance. The finer stone from the quarry of N. Cripps has been used in the construction of the Bowdoin College chapel, First Parish Church, and several other large buildings in the State."



First Parish Church

The granite from the Grant Quarry is described by Dale (1907) as biotite granite of medium gray shade and fine even-grained texture. However, when the Bowdoin College chapel was recently undergoing exterior renovations and needed to replace some stone, it was determined from college records that it was indeed a local quarry for the source of the granite blocks, but it was not from the Grant Quarry. Bowdoin geology professor emeritus Arthur Hussey suggested that granite from the LaChance Quarry (Figure 5) in Brunswick was the better geological match for the chapel stone.



Figure 5. Sample of granite from the LaChance Quarry, Brunswick shown in upper left. Granite at lower right is the outer wall of the Bowdoin College chapel.

First Parish Church

However, the LaChance stone does not match the First Parish building stone. It appears that two different types of granite were used in the construction of the church; a medium-dark gray, medium-grained granite found on the sides and rear, and a light gray, medium to fine-grained muscovite-bearing granite with a weak foliation in the rock, found on the front.



Photo by Thomas K. Weddle

Figure 6. Close-up of the light gray, medium to fine-grained, muscovite-bearing granite found on the front of the First Parish Church. Small reddish-pink garnets can be seen on the left side of the image.

First Parish Church

The front stone (Figure 6) seems to fit Merrill's description of the quarry in Brunswick from the quarry of N. Cripps; the side and rear walls (Figure 7) seem to fit Dale's description of the stone from the Merriman farm (Grant) quarry. The location of the sources of the building stone of the First Parish Church in Portland remains unanswered.

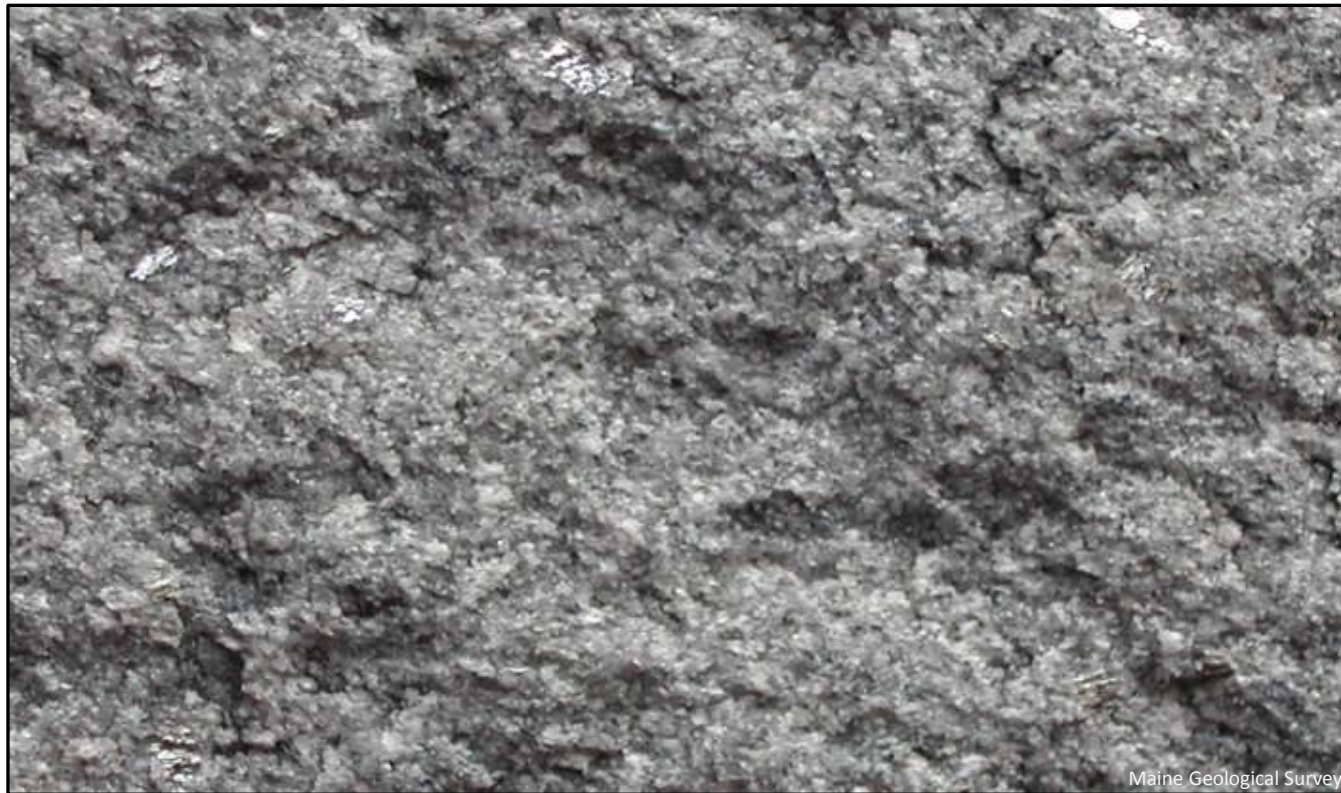


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Figure 7. Close-up of medium-dark gray, medium-grained granite found on the sides and back of the First Parish Church.

Wadsworth-Longfellow House

The third stop is at the Wadsworth-Longfellow House at 487 Congress Street (Figure 8). Although not a quarried stone, brick is a common masonry of Portland buildings, and the brick Wadsworth-Longfellow House is the oldest historic residence on the Portland peninsula, constructed from 1785 to 1786. An interesting oral tradition, most likely originating from Longfellow's sister who lived in the house until her death in 1901 and who willed the home to the [Maine Historical Society](#), is that the brick for the house was originally purchased from Philadelphia.

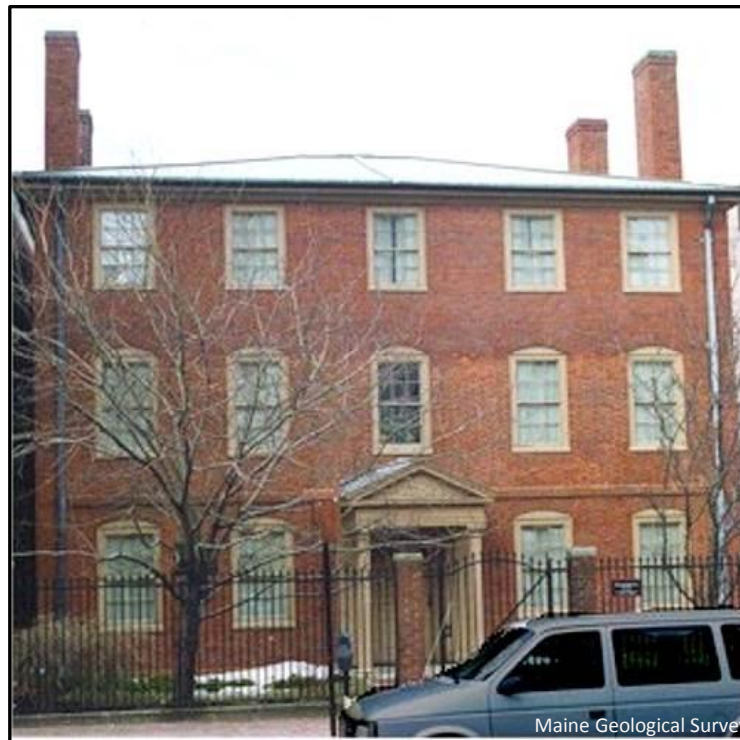


Figure 8. Wadsworth-Longfellow House, 487 Congress Street.

Wadsworth-Longfellow House

It wasn't known why the brick was purchased from Philadelphia, but it may have been due to the shelling and burning of Portland (then known as Falmouth) by the British during the revolution. The cost of the brick may have been high and getting the brick difficult because of the demand to rebuild the city. Brick in Boston may have been at a greater price, too, and so Philadelphia brick was available, and reportedly makes up the exterior of the first two floors of the house (Figure 9).

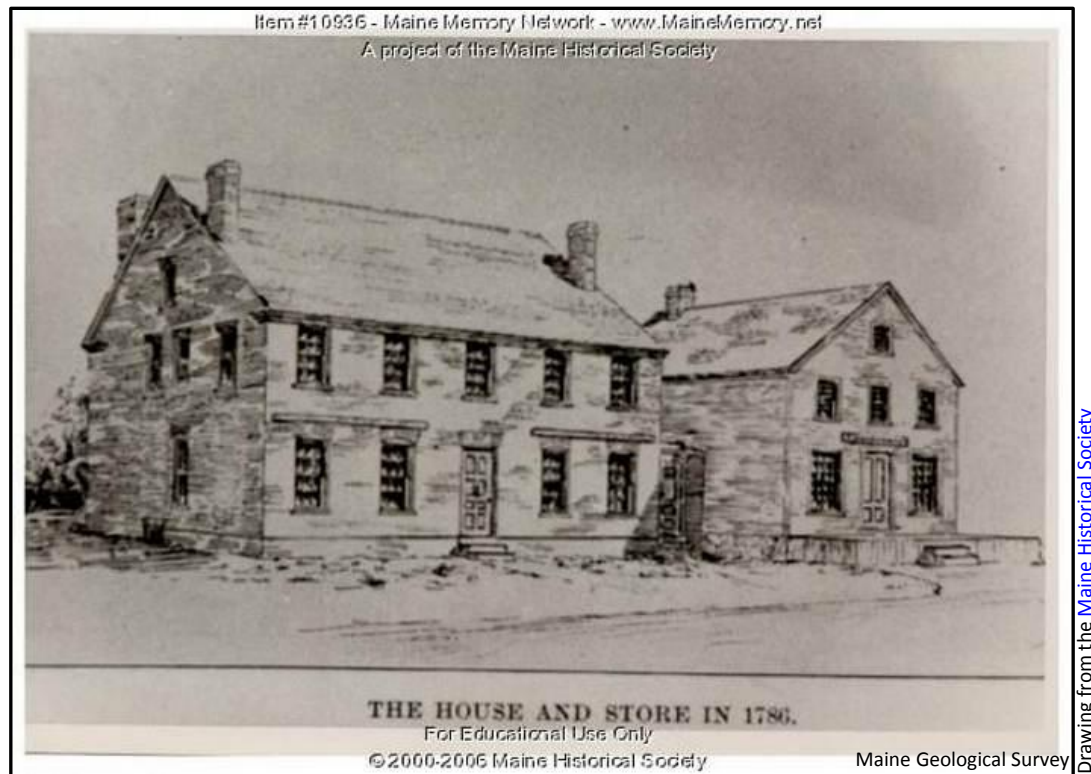


Figure 9. The Wadsworth-Longfellow house and store in 1786.

Wadsworth-Longfellow House

The third floor was added after a chimney fire damaged the roof. It clearly is brick of a different color than the first and second story, but it is not known if the brick of the third floor is from Philadelphia or a local brickyard from that time, or from elsewhere (Figure 10).

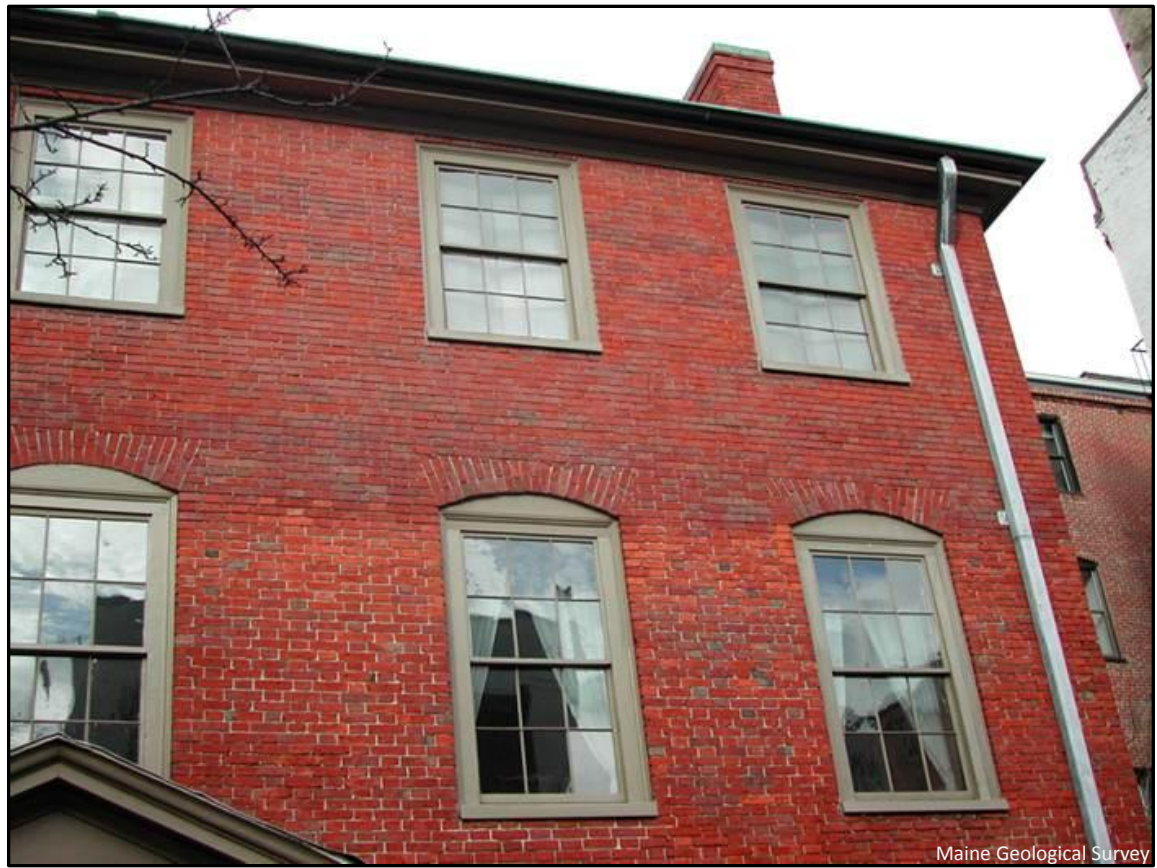


Photo by Thomas K. Weddle

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Figure 10. Third floor of the Wadsworth-Longfellow home.



Centennial Block

The fourth site visited is the Centennial Block at 93-95 Exchange Street (Figure 11). Construction of The Centennial Block was completed in 1876 as a monument to the United States Centennial. In his 1874 volume, *Portland Illustrated*, John Neal describes the buildings on Exchange Street as "large, handsome blocks and warehouses, of granite, iron, Albert-stone, pressed brick and common brick." The term Albert-stone is found elsewhere in his book, as well as in another centennial volume, *Portland and Vicinity*, by Edward H. Elwell, in a longer and more descriptive term as Nova Scotia Albert stone, used for some of the building stone found in the Old Portland City Hall, destroyed by fire in 1908.



Figure 11. Centennial Block, 93-95 Exchange Street.

Centennial Block

The Centennial Block is comprised of several different building stones (Figure 12) including granite from quarries near Spruce Head, Maine, and, most likely, [Red Beach](#) in eastern Maine, as well as Nova Scotia Albert stone.



Photos by Thomas K. Weddle



Figure 12. (Left) Close-up of Centennial Block showing granite from quarries near Spruce Head, Maine. (Right) Granite column from the Centennial Block; most likely Red Beach granite.

Centennial Block

Nova Scotia Albert stone is a term used for two types of sandstone, like those on the Centennial Block, most likely quarried from Marys Point, Albert County, New Brunswick; a red sandstone (Figure 13) and a gray sandstone (Figure 14).



Photo by Thomas K. Weddle

Figure 13. Close-up of red sandstone from Centennial Block; probably from Marys Point, Albert County, New Brunswick.

Centennial Block

The quarry was operated by the Albert Freestone Company from 1854 until 1862, and by other companies from 1864 until operations ceased in 1883. The term freestone refers to a rock that can be worked 'freely' or easily, and can be cut or dressed with equal ease in any direction without splitting or tending to split, and usually refers to limestone or fine-grained sandstone (Bates and Jackson, 1987).

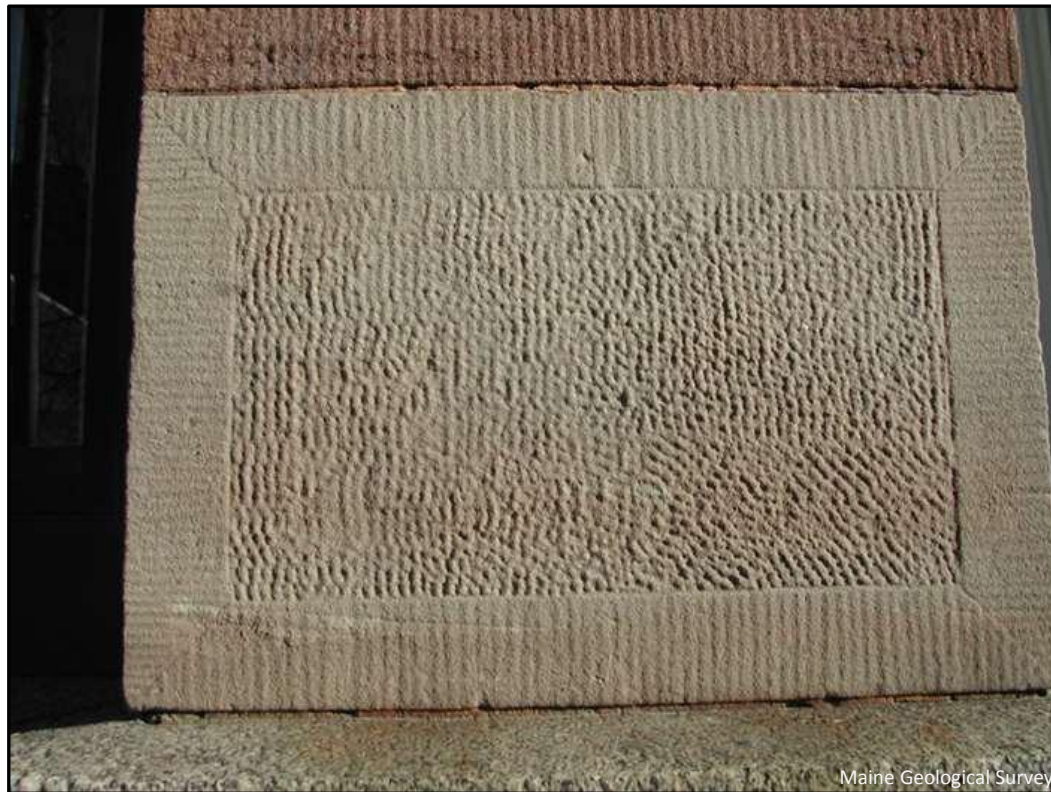


Photo by Thomas K. Weddle

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Figure 14. Close-up of gray sandstone from Centennial Block; probably from Marys Point, Albert County, New Brunswick.

Centennial Block

It was said that the Albert County sandstone used in coastal New England proved very durable when compared with sandstone from Connecticut (Martin, 1990). This may have to do with the natural cementing process of the rocks; the Marys Point rocks are older (Pennsylvanian age) than the Connecticut Portland Brownstone Quarry rocks (Jurassic age), on the order of about 120 million years, and thus have had more time for natural cementing to occur, making them more resistant to the elements.

The term Nova Scotia Albert freestone was explained by the American geologist George P. Merrill in his text *Stones for Building and Decorating* (1891, p.453):

"Owing to the fact that the Nova Scotia stone was the earliest introduced into our market, it has become confounded with that of New Brunswick, which it closely resembles, and it is customary to speak of all stone from this region as Nova Scotia stone. It is stated, however, that fully 95 per cent of the imported material is, in reality, from Westmoreland and Albert Counties, New Brunswick."



Mariner's Church

The fifth building that we will examine is the Mariner's Church at 366-376 Fore Street (Figure 15). The Mariner's Church was built in 1828, erected as a house of worship in Portland for seamen by citizens who were concerned for the "moral and religious instruction of a much neglected but valuable and interesting class of the community. It is designed that the gospel should be preached to every creature." The building today houses shops and businesses and no longer serves the religion and education of mariners.

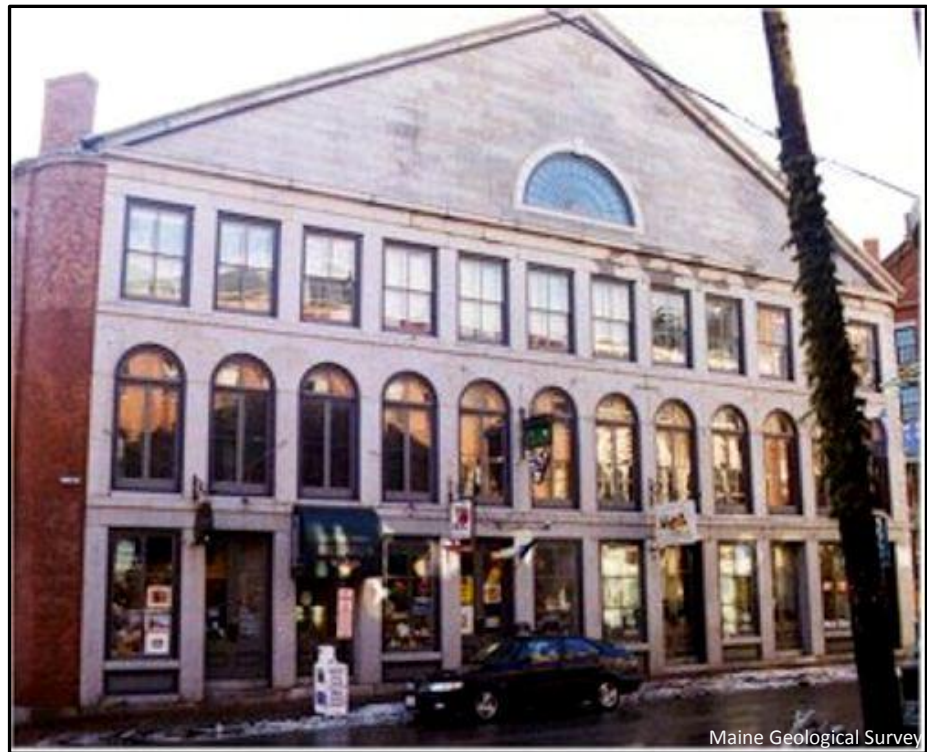


Photo from [Greater Portland landmarks](#)

Figure 15. Mariner's Church, 366-376 Fore Street.

Mariner's Church

The stone used in the construction was quarried by prisoners from the now demolished state prison in Thomaston (see the [Thomaston Prison Quarry](#) bedrock geology field locality) The prison quarry rock was not used, but rather the prisoners quarried granite from the Spruce Head pluton, both coarse and fine-grained varieties.



Photo by Thomas K. Weddle

Figure 16. Biotite-muscovite granite with garnet and other accessory minerals, possibly from the Weskeag Quarry, South Thomaston.

Mariner's Church

The quarry from where the rock was cut is not known, but the fine-grained rock (Figure 16) is a biotite-muscovite granite with garnet and other accessory minerals, possibly from the Weskeag Quarry, and the coarser-grained rock (Figure 17) may be from the Sprucehead Quarry, both in South Thomaston.

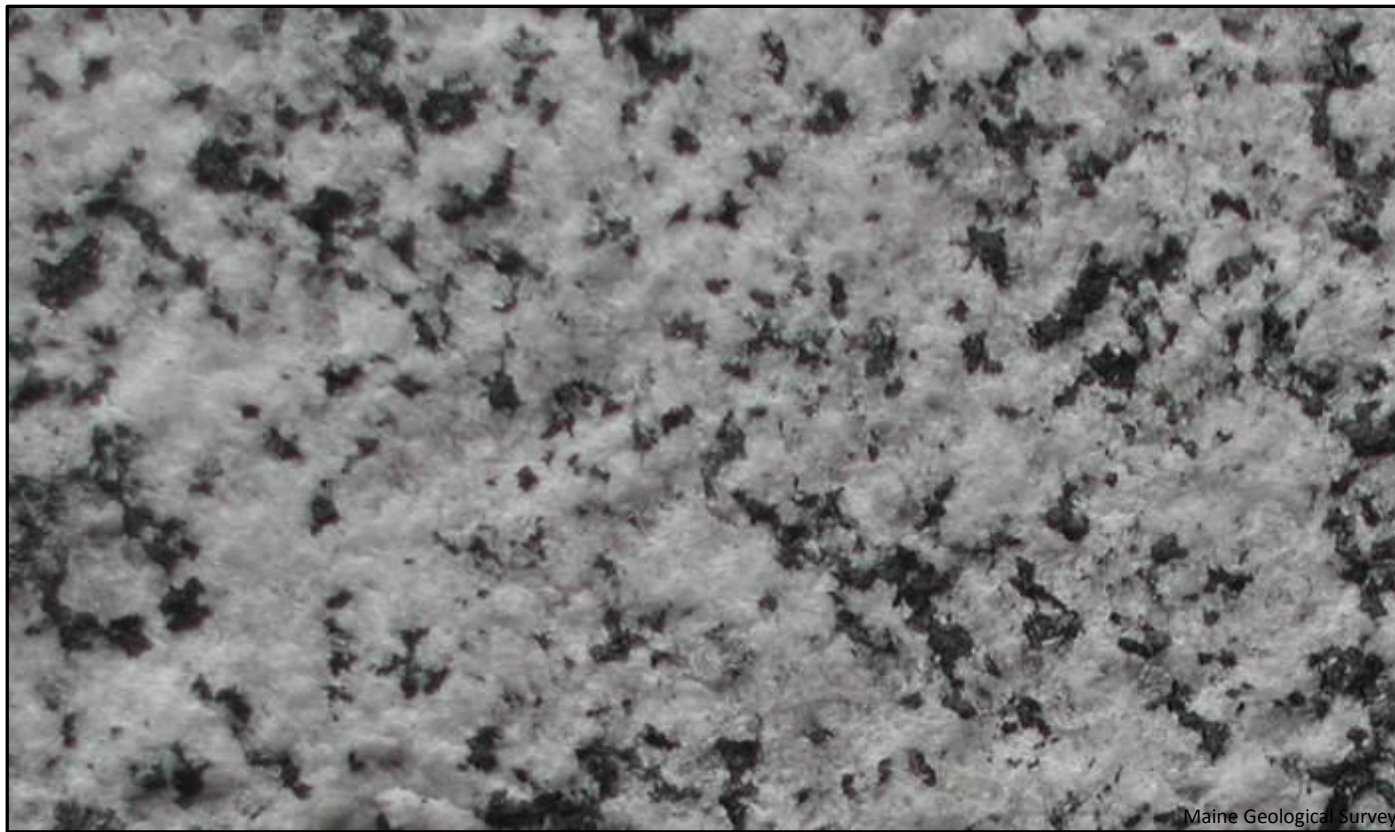


Photo by Thomas K. Weddle

Figure 17. Coarse-grained granite; may be from the Sprucehead Quarry in South Thomaston.

Mariner's Church

The semi-circular window found in the pediment (the triangular area below the roof) has a trim of lighter colored granite than that found in the rest of the building; the source of this stone is unknown (Figure 18).



Photo by Thomas K. Weddle

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Figure 18. Detail of upper front window of the Mariner's Church.



U. S. Customs House

The sixth site we visit is the U. S. Customs House at 312 Fore Street (Figure 19). The U. S. Custom House in Portland is constructed of light-colored biotite-muscovite granite (Figure 20) from Concord, New Hampshire and was completed in 1872.

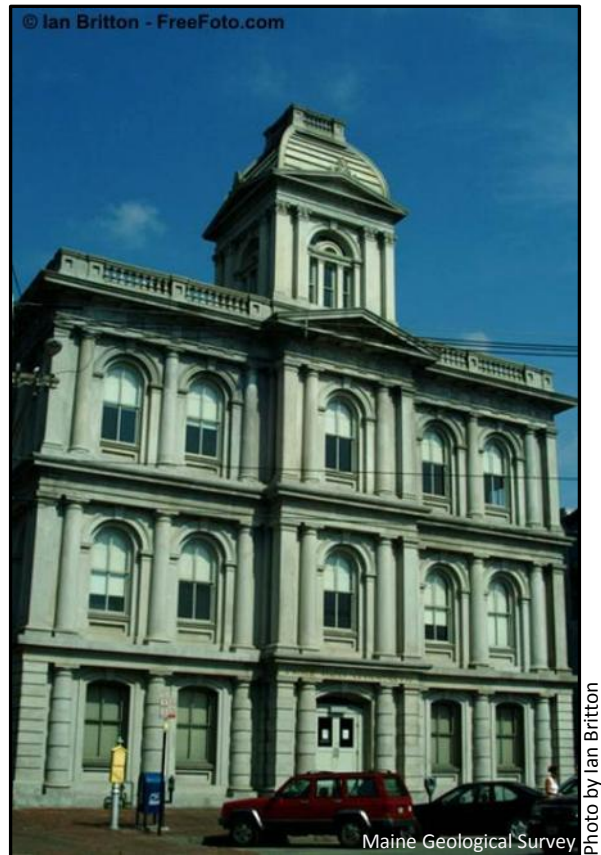


Figure 19. U. S. Customs House, 312 Fore Street.

U. S. Customs House

It was designed by Alfred B. Mullett who was the Supervising Architect for the United States federal government from 1866 to 1874. Today, the Concord Granite quarry is owned and operated by the [Swenson Granite Works](#).



Photo by Thomas K. Weddle

Maine Geological Survey

Figure 20. Close-up of Customs House showing light-colored biotite-muscovite granite from Concord, New Hampshire.



Victoria Mansion

Finally, the last stop of the virtual tour of building stone is at the Victoria Mansion at 109 Danforth Street (Figure 21). The Victoria Mansion was the home of Ruggles S. Morse, who originally was from Maine, but eventually moved to New Orleans where he became a proprietor of hotels. He purchased property in Portland in 1858 to build a summer home, and hired architect Henry Austin of New Haven, Connecticut to design the house. Work began on the building in 1859 but was interrupted by the American Civil War and finally was completed in 1863.



Photo by G. E. Kidder Smith, [Rotch Library Visual Collections](#), MIT

Figure 21. Victoria Mansion, 109 Danforth Street.



Victoria Mansion

Morse returned to Portland after the war and lived there until his death in 1893. Eventually, after several other owners, the home was given to the Victoria Society in 1943 by Dr. William Holmes and his sister Miss Clara Holmes. The building is a beautiful example of Victorian design in both exterior and interior architecture. The exterior is Portland Brownstone from the Portland Quarry, Connecticut (Figure 22).



Figure 22. Close-up of Victoria Mansion showing Portland Brownstone from the Portland Quarry, Connecticut.

Victoria Mansion

In 2000, the building underwent an intensive study of the deterioration of the stone, and in 2004 renovations to the tower of the mansion were done. However, the deterioration of the stone is found elsewhere on the exterior and will be an ongoing restoration task (Figure 23).



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Figure 23. Details of Victoria Mansion showing deterioration of the stone.

Acknowledgements

Earle G. Shettleworth Jr., Director of Maine Historic Preservation Commission, for recommending the buildings to examine;

Arthur Hussey II, Emeritus Professor of Geology, Bowdoin College, for taking the walking tour with me and assisting with rock identification;

Ron Shaw and Tim Web, New Brunswick Department of Natural Resources, Geological Surveys Branch, Fredericton, New Brunswick, Canada, for information on Marys Point Quarry and Albert freestone;

Beth Marshall, Administrator, First Parish Church, Portland;

Staff at Greater Portland Landmarks;

Robert Wolterstorff, Director, Victoria Mansion;

Librarians and staff of the Maine Historical Society, Portland;

Eric French, Smithsonian Institution, Washington, D.C.;

Ian Britton, FreeFoto.com;

Rick Wilson and Geoffrey LaChance, of Brunswick.



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- Rand, J. R., 1958, Maine granite quarries and prospects: Maine Geological Survey (Department of Economic Development), Minerals Resources Index No. 2, 50 p., (1 map, scale 1:760,320).



Other Resources

Portland's Heritage, from the Portland, Maine, Evening Express; a series of newspaper articles by Earle. G. Shettleworth, Jr.; for the buildings presented herein, the articles ran from 1965 to 1967.

The G. E. Kidder Smith Slide Archives on American Architecture, [Rotch Library Visual Collections](#), Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139-4307

Portland City Hall, [City of Portland](#), 389 Congress Street, Portland, Maine 04101

[Greater Portland Landmarks](#), 165 State Street, Portland, ME 04101-3797

[Maine Historical Society](#), 489 Congress Street, Portland, ME 04101

[Victoria Mansion](#), 109 Danforth Street, Portland, Maine 04101

Photos of First Parish Church and the U. S. Customs house courtesy of Ian Brittan, [website](#)

